



Falco Flight Test Cards

These flight test cards were prepared by Al Aitken for the initial flight testing of Al Dubiak's Falco.

We are making these available so that others may use these as a guide of how a flight test program should be designed.

Many thanks to Al Aitken for his contributions to the Falco Flight Test Guide and for all he has done to advance the safe flight testing of homebuilt aircraft.

Alfred P. Scott
President
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Things to bring

- 1. Licenses**
- 2. Logbooks**
- 3. Headset**
- 4. Kneeboard**
- 5. Hat**
- 6. Sunglasses**
- 7. Flashlight**
- 8. Stopwatch**
- 9. Flight bag**

Do/check these things prior to any testing.

- 1. Airport area check**
- 2. Takeoff zone**
- 3. Landing zone**
- 4. Runway condition-slope, length**
- 5. Weather check**
 - a. 5,000/5 minimum required for flight test**
- 6. Aircraft weight and balance**
 - a. Double check method and figures**
- 7. Debrief on all engine problems to this point and what was done to solve them**
- 8. Brief with owner and EAA Flight adviser all ground tests and first flight test**
- 9. Preflight aircraft thoroughly**
- 10. Review brake conditioning results**

Before Starting Engine

- 1. Fuel/Oil Qty.....Checked**
- 2. Load.....Secured**
- 3. Controls.....Checked**
- 4. Seats.....Adjusted**
- 5. Seat belts.....Fastened**
- 6. Parking brake.....On**
- 7. Canopy.....Closed/Locked**
- 8. Landing gear switch...Down**
- 9. Gear motor knobEngaged**
 - a. Disengage for first flight**
- 10. Fuel selector.....Front**
- 11. Master switch.....On**
- 12. Alternator switchOn**
- 13. Gear down light.....Check**
- 14. Avionics switch.....Off**
- 15. Voltmeter.....Check 14v**
- 16. Fuel quantity.....Check**
- 17. Switches.....Off**
- 18. Circuit BreakersIn**
- 19. Altimeter.....Set**

Engine Start (Cold Start)

1. Alternate air.....Off
2. Throttle.....1/4"
3. Prop.....Full
Increase
4. Mixture.....Rich
5. Aux. Fuel pump.....On
(Bump)
6. Aux. Fuel pump.....Off
7. Ignition.....Start
8. Throttle.....900 rpm
9. Oil Pressure.....Green

Engine Start (Warm)

1. Alternate air.....Off
2. Throttle.....1/4"
3. Prop.....Full
Increase
4. Mixture.....Lean
5. Ignition.....Start
6. Mixture.....Rich
7. Throttle.....900 rpm
8. Oil Pressure.....Green

Warm-Up/Taxi

1. Throttle.....1000-1200 rpm
2. Ammeter.....Positive
3. Oil pressure.....Green
4. Fuel pressure.....Green
5. Parking BrakesReleased
6. Brakes.....Checked

Run-Up

1. Mixture.....Rich
2. Prop.....Full increase
3. Throttle.....1200
 - a. Suction.....Green
 - b. CHT.....Green
 - c. Oil temp.....Green
 - d. Oil press.....Green
 - e. Ammeter.....Positive
 - f. Fuel Gauges.....Check
 - g. Fuel press.....Green
 - h. Voltmeter.....14v
4. Throttle.....1750 rpm
 - a. Mag check.....75-100 drop
 - b. Mag diff.....50 rpm
 - c. Prop.....Cycle
 - d. Alternate air.....Check
 - e. Other fuel tankCheck

Before Takeoff

- 1. Canopy.....Closed/Locked**
- 2. Seat belts.....Fastened**
- 3. Flaps.....15 deg.**
- 4. Flight controls.....Check**
- 5. Elevator trim.....Neutral**
- 6. Fuel selector.....Front tank**
- 7. Aux fuel pump.....On**
- 8. Turn coord.....On**
- 9. Strobes.....On**
- 10. Nav. Lights.....On**
- 11. Prop.....Full increase**
- 12. Mixture.....Rich**
- 13. Directional gyroSet**
- 14. Oil Temp.....Green**
- 15. Warning lightsGreen only**
- 16. Clearance.....Received**
- 17. Parking brake.....Released**

Normal Takeoff

1. Parking brakeReleased
2. Landing light.....On
3. Throttle.....Full open
 - a. Smoothly
4. Right rudder.....Counter torque
5. Rotate.....60 KIAS

Climb

1. Gear.....Up
 - a. Down for first flight
2. Airspeed.....85 KIAS
3. Flaps.....Up
 - a. Raise at 1,500 ft. AGL
4. Turn.....Initiate
 - a. Shallow climbing turn
 - b. Remain over field
5. Aux fuel pump.....Off
 - a. Off at 2,000 ft. AGL
6. Engine Inst.....Check
7. Warning lights.....Green only
8. Landing light.....Off

Cruise

1. Level off.....3,500 ft AGL
2. Manifold press.....Set
 - a. Adjust for 125 KIAS
 - b. Gear remains down
3. Prop.....2,500 rpm
4. Mixture.....Rich
5. Trim.....125 KIAS
6. Warning lights.....Green only
7. Fuel qty.....Check

Descent

1. Mixture.....Rich
2. Prop.....Full increase
 - a. Smoothly
3. Manifold press.....Reduce
 - a. 20 inches for shallow descent
4. Warning lights.....Green only

Landing Approach

1. Fuel selector.....Front tank
2. Mixture.....Rich
3. Prop.....Full increase
4. Gear.....Down
 - a. Green light on
5. Landing light.....On
6. Flaps.....20 deg.
 - a. Below 97.5 KIAS
7. Aux. Fuel pump.....On
8. Airspeed.....85 KIAS
 - a. Initial approach
9. GUMP.....Check
10. Airspeed.....74 KIAS
 - a. Over the fence

Go Around

1. Throttle.....Full open
 - a. Smoothly
2. Pitch.....8-10 deg.
3. Airspeed.....85 KIAS
4. Gear.....Up
 - a. Down for first flight
5. Flaps.....Up
 - a. Raise at 1,500 ft. AGL
6. Aux. Pump.....Off

After Landing

- 1. Flaps.....Up**
- 2. Aux. Fuel pump.....Off**
- 3. Landing light.....Off**

Parking/Shutdown

- 1. Parking brake.....Set**
- 2. Avionics switch.....Off**
- 3. Prop.....Full increase**
- 4. Throttle.....1,200 rpm**
 - a. 20 seconds**
- 5. Mixture.....Lean**
- 6. Ignition switch.....Off**
- 7. Landing Light.....Off**
- 8. Nav. Lights.....Off**
- 9. Strobe lights.....Off**
- 10. Turn coord.....Off**
- 11. Alternator switch.....Off**
- 12. Master switch.....Off**
- 13. Canopy.....Open**

HIGH SPEED TAXI TESTS	Location _____
	Date _____
	Time _____

Configuration: Gear down, Flaps 15 deg
 Slow taxi, light braking to runway end
 Traffic watch/Unicom call
 Runway Lineup
 Feet off brakes/Slowly add partial power
 Accelerate to desired taxi test speed
 Throttle ease to idle
 Light brakes to slow taxi speed
 Exit runway

Directional Control Tests

Controls: Neutral
 Directional Control with Ruder & NWS

Run	Tgt A/S	A/S	HQR	Comment
1	20 KIAS	<input type="checkbox"/>	<input type="checkbox"/>	_____
2	40 KIAS	<input type="checkbox"/>	<input type="checkbox"/>	_____
3	50 KIAS	<input type="checkbox"/>	<input type="checkbox"/>	_____

Comments:

Aileron Control Test

Max Airspeed – 50 KIAS
Full Left/Right Aileron from Zero Airspeed
Elevator Neutral
Slowly Accelerate from Zero Airspeed

Run	Input	A/S @ Rise	Max A/S	Response
4	Left	<input type="text"/>	<input type="text"/>	_____
5	Right	<input type="text"/>	<input type="text"/>	_____

Comments:

Elevator Control Test

Max Airspeed – 50 KIAS
Full Aft Stick from Zero Airspeed
Ailerons Neutral
Slowly Accelerate from Zero Airspeed

Run	A/S @ Rise	Max A/S	Response
6	<input type="text"/>	<input type="text"/>	_____

Comments:

Flight Test	Location _____
	Date _____
	Time _____

Runway: **Length:**

Field Elevation: **Temp:**

Takeoff: Punch Clock
Configuration: Gear down, Flaps 15 deg
Run-up & Takeoff Checklists-Complete
Throttle smoothly to full
Check Engine Instruments:

Manifold Press: **RPM:**

Rotate at 60 KIAS:

Nose Attitude – 8 to 10 degrees up

Actual Liftoff Airspeed:

Comments:

Climb:

Airspeed – 85 KIAS

Configuration: Gear Down, Flaps up @ 1,500 AGL

Attitude for 85 KIAS

Gentle Climbing Turn

Remain Over the Airport

Climb to 3,500 ft. AGL

Manifold Press.

RPM

Oil Press

Oil Temp

EGT

1

3

CHT

2

4

Fuel Press

Comments:

Level off:

Altitude 3,500 AGL Minimum

Configuration: Gear Down, Flaps up

Throttle retard

Prop Full Increase

Mixture Rich

Airspeed – 125 KIAS maximum (gear down)

Remain Over Airport

Turns up to 30 Degrees AOB

Reversals

Manifold Press RPM

Oil Press Oil Temp

EGT: 1 3 CHT
2 4

Fuel Press

Comments:

Descents and Climbs:

Airspeed – 100 KIAS

Configuration: Gear Down, Flaps up

Manifold Press RPM

Descents:

500 fpm: Manifold Press.

RPM

1,000 fpm: Manifold Press.

RPM

Climbs:

500 fpm: Manifold Press.

RPM

1,000 fpm: Manifold Press.

RPM

Comments:

Slow Flight:

Airspeed – 80 KIAS

Configuration: Gear Down, Flaps 20 degrees

Manifold Press RPM

Turns up to 15 degrees AOB

Reversals

Descents:

500 fpm: Manifold Press.

RPM

1,000 fpm: Manifold Press.

RPM

Climbs:

500 fpm: Manifold Press.

RPM

1,000 fpm: Manifold Press.

RPM

Comments:

Level Flight Engine Check:

Airspeed – 80 KIAS

Configuration: Gear Down, Flaps 20 Degrees

Manifold Press. RPM

Oil Press Oil Temp

EGT 1 3 CHT
2 4

Fuel Press

Comments:

Spin Recovery Review:

1. Throttle to Idle
2. Stick Neutral to Slightly Aft
3. Rudder Full Opposite Rotation
Direction
4. Neutralize Rudder when Rotation Stops
5. Smoothly Pull Out of Dive

Approach to Stalls:

Configuration: Gear Down, Flaps as Required
Decelerate Slowly to Buffet Onset Only

Run	Flaps	Pwr	AOB	SW A/S	SW
1	Up	Idle	0 deg	<input type="text"/>	_____
2	Up	25/25	0 deg	<input type="text"/>	_____
3	Up	Idle	30 L	<input type="text"/>	_____
4	Up	Idle	30 R	<input type="text"/>	_____
5	Up	25/25	30 L	<input type="text"/>	_____
6	Up	25/25	30 R	<input type="text"/>	_____
7	20 deg	Idle	0 deg	<input type="text"/>	_____
8	20 deg	25/25	0 deg	<input type="text"/>	_____
9	20 deg	Idle	20 L	<input type="text"/>	_____
10	20 deg	Idle	20 R	<input type="text"/>	_____
11	20 deg	25/25	20 L	<input type="text"/>	_____
12	20 deg	25/25	20 R	<input type="text"/>	_____

Expect Clean Stall at 65 KIAS

Expect Dirty Stall at 54 KIAS

Stalls:

Configuration: Gear Down, Flaps as Required
Decelerate Slowly to Full Stall
Recover Immediately

Run	Flaps	Pwr	AOB	Stall A/S	Stall
1	Up	Idle	0 deg	<input type="text"/>	_____
2	Up	25/25	0 deg	<input type="text"/>	_____
3	20 deg	Idle	0 deg	<input type="text"/>	_____
4	20 deg	25/25	0 deg	<input type="text"/>	_____
				→ Approach Stall Speed	_____
					<u>x 1.3</u>
				Over the Fence Approach Speed:	<input type="text"/>

Note: Type of Stall Warning
Degree of Warning
Airspeed at Warning
Controllability up to Stall

Spin Recovery:

1. Throttle to Idle
2. Stick Neutral to Slightly Aft
3. Rudder Full Opposite Rotation Direction
4. Neutralize Rudder when Rotation Stops
5. Smoothly Pull Out of Dive

Practice Landing Approaches:

Configuration: Gear Down, Flaps 20 Degrees

Make 2 Practice Approaches

Target Altitude: 2,000 ft. AGL

Initial Approach Speed 80 KIAS

Rate of Descent: 500 – 700 fpm, Power as Required

At 200 ft. Above Target Altitude Slow to:

Over the Fence Approach Speed:

Go Around at 2,000 ft. AGL

Power – Full Throttle

Climb Airspeed – 85 KIAS, Flaps Up @ 2,500 ft. AGL

Comments:

Engine Check:

Airspeed – 80 KIAS

Configuration: Gear Down, Flaps 20 Degrees

Manifold Press.

RPM

Oil Press

Oil Temp

EGT

1

3

CHT

2

4

Fuel Press

Full Stop Landing:

Configuration: Gear Down, Flaps 20 Degrees

Complete Descent and Landing Checklists

Initial Approach Speed 80 KIAS

Power from Practice Approach Card

Slow to:

Over the Fence Approach Speed:

Hold Power on in Flare

Ease Power Off to Touch Down

Hold Nose Off in Flare

Light Braking with Stick Aft

Complete After Landing and Parking/Shutdown

Checklists

Comments: